



Seybold Spring 2001
Boston

SMASH

A Weapons-Grade PDF Library
for Industrial PDF Workflows

Who We Are, What We Do

Pushing the PDF Envelope

Faster PDF

- SMASH
- Using SMASH

The Future

Summary

Demonstration

Production PDF Workflows and Tools for Versioning, Automation, Variable Data, Preflighting & Imposition

- pdfExpress & pdfExpress Workflows
- Argon PDF/PPML Viewer
- **SMASH**
- OEM Products
 - PDF ProofStreamer (Canopy)
 - Poster Genie Markup (Onyx Graphics)

Active in PODI for PPML & CGATS for VDX

Our customers want full color, graphic arts quality variable data at today's black and white production speeds and prices.

Although PDF solves the color and graphic arts quality issues, our customers do not see PDF as fast enough to...

- Print wide format, duplex, 4-color, variable data at up to 2+ meters/second.
- Print variable data at 1,000 pages/second.
- Preflight jobs and impositions in real-time.
- RIP efficiently.

What makes today's PDF too slow?

- Cos conserves display performance over creation and manipulation speed.
- "PDF Library" issues...
 - Fast content stream manipulation is hard.
 - Many operations require less knowledge of PDF or Cos structure.
 - Structural commonality is not exploited.
 - Cos structure is reevaluated each time a PDF file is opened.

SMASH is a new, more efficient way to define PDF library operations common to the domain of variable data, versioning and imposition.

SMASH replaces the PDF Library model with:

- Real-time editing of PDF content streams.
- Scalable performance linear with input file size and complexity (no performance knees).
- Compilation to eliminate redundant reinterpretation of Cos & PDF structures.
- Removal of redundant Cos & PDF structure.
- Scalable multi-processor support.

SMASH performance within its domain:

- Generates up to 1,000+ variable PDF pages a second.
- Improves Adobe Acrobat's performance by 100x or more.
- Reduces output file size by 50% or more over Adobe Acrobat.

SMASH operates only on PDF files. It performs static analysis and restructuring to produce new PDF files.

SMASH is a domain-specific PDF Library and does not provide generic PDF Library functionality.

The SMASH implementation:

- A C++ library for PC, Mac and Unix; COM; shared libraries.
- A PDF compiler called "pdfc" (code named Amaranth on web site)
- A plug-in version for PC and Mac Acrobat (full performance, limited to non-network use)
- A server for PC, Mac and Unix (full performance)

Concatenating files:

```
C:> pdfc -i f1.pdf f2.pdf ... -o concatenation.pdf -smash
```

Concatenating files and removing common elements:

```
C:> pdfc -i f1.pdf f2.pdf ... -o concatenation.pdf -smash -pack
```

Concatenating frequently used files:

```
C:> pdfc -c f1.pdf f2.pdf ...
```

```
C:> ...
```

```
C:> pdfc -i f1.pdf f2.pdf ... -o concatenation.pdf -smash -share
```

```
C:> ...
```

```
C:> pdfc -i f1.pdf f2.pdf ... -o concatenation.pdf -smash -share
```

As a pdfExpress server:

```
C:> pdfc -run bigbiz_server.lis
```

As a pdfExpress server removing common elements:

```
C:> pdfc -run bigbiz_server.lis -pack
```

As a pdfExpress server accessing frequently used PDF files:

```
C:> pdfc -c f1.pdf f2.pdf ...
```

```
C:> ...
```

```
C:> pdfc -run bigbiz_server.lis -share
```

```
C:> ...
```

```
C:> pdfc -run bigbiz_server.lis -share
```

To preflight a Xeikon Bookticket file:

```
C:> bimp -btf signator_8_b1.btf
```

To impose a PDF file according to a XML imposition template:

```
C:> bimp -xml step_and_repeat.imp -in input.pdf  
-out input_step_and_repeat.pdf
```

To preview PPML:

```
C:> bimp -run -ppml int_test.xml -in amaranth.pdf  
-lis amaranth.lis -out result.pdf
```

Taking SMASH to the next level...

- Addition of multiprocessor support to SMASH.
- Integration with new PPML and VDX workflows.
- More sophisticated compilation techniques:
 - Hinting for RIPS.
 - Removing unnecessary PDF operators.
 - Restructuring of PDF for parallel RIPing
 - to control granularity.
 - to control aggregate throughput through compiler-like optimization.

SMASH replaces the PDF Library model with:

- Scalable, linear, real-time performance that allows PDF to compete effectively with existing Internet and black and white production workflows.
- The ability to integrate effective reuse into a workflow through compilation.
- Freedom from redundancy (bloated file sizes).
- Effective access to multi-processor and multi-RIP environments.

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Demonstration

You can find us (and this presentation) at:

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